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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|----------------------|-------------|----------------------|---------------------|------------------|
| 10/712,829 | 11/12/2003 | Timothy L. Lambert | 0204-PA | 8833 |
| 7590 | 11/21/2006 | | EXAMINER | |
| CROMPTON CORPORATION | | | BOYER, RANDY | |
| Benson Road | | | ART UNIT | PAPER NUMBER |
| Middlebury, CT 06749 | | | 1764 | |

DATE MAILED: 11/21/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | |
|------------------------------|------------------------|---------------------|
| Office Action Summary | Application No. | Applicant(s) |
| | 10/712,829 | LAMBERT ET AL. |
| | Examiner | Art Unit |
| | Randy Boyer | 1764 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 12 November 2003.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-10 is/are pending in the application.
 - 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-10 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|----------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>12 November 2003</u> . | 6) <input type="checkbox"/> Other: _____. |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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4. Claims 1-10 are rejected under 103(a) as being unpatentable over Wettling (US 2003/0162918) in view of Ishikawa (US 3567795).

5. With respect to claim 1, Wettling discloses a process for catalyst deactivation of a crude polyolefin polymerized in the presence of a boron trifluoride catalyst whereby the crude polyolefin is washed with water (see Wettling, page 4, paragraph 62), the aqueous and organic phases are separated (see Wettling, page 4, paragraph 62), an aluminum oxide adsorbent (deactivator) is added to the organic phase to form a slurry (see Wettling, page 4, paragraph 54), the slurry is heated (see Wettling, page 5, paragraph 75), and the adsorbent is separated from the organic phase (see Wettling, page 5, paragraph 75).

Wettling does not disclose a process step for heating the slurry solution under reduced pressure.

However, Ishikawa discloses a process of eliminating an aluminum chloride polymerization catalyst from polymerization products whereby sodium silicate is brought into contact with a crude polymer solution and heated under conditions of reduced pressure so as to reduce the halogen content of such solution (see Ishikawa, column 5, lines 16-18). Furthermore, it is known in the art that a stripping operation to remove halogen impurities can be enhanced by carrying out such operation at conditions of reduced pressure (see, e.g., Huang, US 5712214, at column 5, lines 16-17).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the process of Wettling by heating the adsorbent/polymer slurry under conditions of reduced pressure as taught by Ishikawa

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so as to effect a better separation and removal of the halogen component from the crude polyolefin.

6. With respect to claims 2-4, Ishikawa discloses a process for the refining of hydrocarbon polymers obtained by polymerization with a Friedel-Crafts type catalyst (see Ishikawa, column 2, lines 22-34).

7. With respect to claim 5, Ishikawa discloses the use of silicates to remove polymerization catalyst impurities (see Ishikawa, column 2, lines 30-32).

8. With respect to claims 6 and 7, Ishikawa discloses the heating of polymer solution under conditions of reduced pressure for a given duration (see Ishikawa, column 5, lines 17-18).

9. With respect to claim 8, Ishikawa discloses the use of a silicate to remove polymerization catalyst impurities (see Ishikawa, column 2, lines 22-34) employed at a level greater than 0.4 eq. metal/eq. halogen (see Ishikawa, column 2, lines 59-66).

10. With respect to claim 9, Wettling discloses the separation of catalyst adsorbent (deactivator) from an organic slurry phase (see Wettling, page 5, paragraph 75).

11. With respect to claim 10, the prior art discloses the removal of Friedel-Crafts type catalyst impurities from a crude polyolefin polymerized in the presence of such catalyst whereby the crude polyolefin is washed with water (see Wettling, page 4, paragraph 62), the aqueous and organic phases are separated (see Wettling, page 4, paragraph 62), a silicate is added to the organic phase to form a slurry (see Ishikawa, column 5, lines 8-9), the slurry is heated under reduced pressure (see Ishikawa, column 5, lines 17-18), and the silicate is separated from the slurry (see Ishikawa, column 5, line 17).

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Conclusion

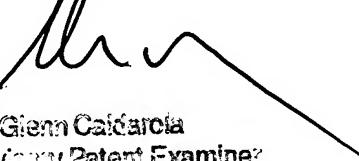
12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Moody (US 4338477), Hwang (US 4634744), Timms (US 4952304), and Huang (US 5712214).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Randy Boyer whose telephone number is (571) 272-7113. The examiner can normally be reached Monday through Friday from 8:00 A.M. to 5:00 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn A. Calderola, can be reached at (571) 272-1444. The fax number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

RPB



Glenn Calderola
Supervisory Patent Examiner
Patent Office 700